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ABSTRACT

Phase III, the development and testing of experimental programs to reduce the rate of student attrition, of the Northern California Cooperative Research Project (NORCAL) on Student Attrition is reported upon. Phase I of the program was the description and identification of characteristics associated with attrition among Junior College students (see ED 031 240), and Phase II was the development and validation of a predictive model to identify the attrition prone students (see ED 039 879). Student withdrawals in 22 participating community colleges are now being studied in Phase III; this report concerns Napa College only. An experimental and a validation study were conducted at the college. The independent variable was special counseling services. Students in the experimental groups who received special counseling services were compared with those who received routine student services, the comparisons being made at the end of the fall and winter quarters. These comparisons showed that the students who had received special counseling services had a lower attrition rate, a higher enrollment rate, a higher grade point average, and completed more units. The validation study compared, at the end of the fall and winter quarters, the performance criteria of students identified by the NORCAL questionnaire as potential dropouts with students matched on ACT test scores and sex. These comparisons showed that those identified as potential dropouts had a higher attrition rate, a lower reenrollment rate, completed fewer units, and had lower grade point averages. The results of the two studies show that special counseling does help potential dropouts and that the NORCAL questionnaire is valid. A copy of the questionnaire is included. (DB)

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ATTRITION PREVENTION THROUGH COUNSELING AMONG COMMUNITY COLLEGE STUDENTS
NORCAL PHASE III

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TABLE OF CONTENTS

I INTRODUCTION

II REVIEW OF THE LITERATURE

Attrition Studies

Phase I NORCAL

Phase II NORCAL

III METHODOLOGY

A. General design

B. Population

C. Sampling

D. Treatments

E. Record keeping and data collection

F. Objectives

G. Hypotheses

IV RESULTS

V DISCUSSION OF RESULTS

VI CONCLUSION

VII PROBLEMS OF IMPLEMENTATION

VIII IMPLICATIONS

REFERENCES

ATTRITION PREVENTION THROUGH COUNSELING AMONG COMMUNITY COLLEGE STUDENTS NORCAL PHASE III

This study is part of Phase III of Northern California Research Project on Student Attrition.

Two kinds of studies were conducted at Napa College. The first was a true experimental design, and the second a validation study. The independent variable was to be special counseling services. Students in the experimental group who received the special counseling services were compared with students who received routine student services. These comparisons were made at the end of the fall quarter and at the end of the winter quarter. At the end of the fall quarter it was apparent that students in the experimental group who had received special counseling services had a lower attrition rate (p .01), a higher re-enrollment rate (p .01), higher grade point average (p .01), completed more units (p .01). When the two groups were compared after the winter quarter it was seen that those students in the experimental group had lower attrition rates during the winter quarter (p .01), higher re-enrollment rate for spring quarter (p .01), higher grade point averages after winter quarter (p .01), and completed more units after winter quarter (p .01). The validation study at Napa College consisted of the comparison of performance criteria for two groups. The first group consisted of those students who were identified as potential dropouts by the NORCAL questionnaire. The second group of students were matched with the first group on the variable of ACT test score and sex. The comparisons were made after fall quarter and after winter quarter. Students identified by the NORCAL questionnaires as potential dropouts did have a higher attrition rate after fall quarter (p .01), a lower re-enrollment rate after fall quarter (p .01), a higher attrition rate after winter quarter (p .001), a lower re-enrollment rate after winter quarter (p .001), completed fewer units after fall quarter (p .005), had lower grades after fall quarter (p .005), completed fewer units after winter quarter (p .005), had lower grade point averages after winter quarter (p .005). There are two lessons to be gained from the Phase III NORCAL Study as accomplished in Napa College. Special counseling does help potential dropouts and the NORCAL questionnaire is valid.

INTRODUCTION

This study is part of Phase III of the Northern California Cooperative Research Project on Student Attrition.

The Northern California Cooperative Research Project (NORCAL) on Student Attrition had as its aims: a) the description and identification of characteristics associated with attrition among Junior College students (Phase I) b) the development and validation of a predictive model to identify the attrition prone students (Phase II) c) the development and testing of experimental programs to have an impact on reducing the rate of attrition (Phase III). Eash phase of the project was to take one academic year.

The Northern California Cooperative Research Project (NORCAL) is now in Phase III of a federally and locally funded study of student withdrawals in twenty-two participating community colleges. This report is that part of Phase III as undertaken at Napa College under Dr. George Clark, President; Mrs. Virginia Murdoff, NORCAL Research Supervisor; and Dean of Student Services, Mr. Al Pedler, Head Counselor; and Mrs. Gladys Dallas, Counselor. Mrs. Dallas was assigned to work with those students predicted to withdraw from college as identified by the questionnaire developed and validated under Phase II, of NORCAL in an attempt to identify procedures that might prevent withdrawal.

Napa College is in the city of Napa, population approximately forty thousand, in Napa County, which constitutes one of the finest agricultural/viticultural areas of the state, offering a fine, year round climate.

As part of the greater San Francisco Bay Area, Napa enjoys the cultural and recreational advantages of this large metropolitan area. In a recent survey (City of Napa) the average 1971 family income is between $7,000 and $10,000 annually and the population of Black, Mexican and Oriental origin constitutes less than five percent. The State Department of Education has made a racial and ethnic survey of California public schools as of the fall, 1969. The following breakdown gives the totals for Napa County:

Total Students	17,299	
Total Minorities	1,263	(7.2%)
Total Other	16,036	(92.8%)

The minority students of 7.2% breakdown as follows:

Spanish Surname	1,094	(6.3%)
Black	22	(0.1%)
Oriental	109	(.6%)
American Indian	33	(.2%)

Fifty-eight percent of the population have lived in Napa for eleven years or more and fourteen percent in the same house.

Under Phase III of the NORCAL project a number of programs were undertaken by California Community Colleges. Among measures designed to reduce attrition were:

1. Individually paced instruction
2. Career counseling
3. Financial aid
4. Tutorial services

5. Ethnic Studies courses
6. Encounter groups
7. Big Brother/Sister approach
8. Reading/Math/Writing labs
9. Special counseling

The study at Napa College concentrated on special counseling as the measure designed to reduce attrition

Two kinds of NORCAL studies were conducted at Napa College. The first was a true experimental design with the attrition prone students identified by the NORCAL Vehicle divided into two groups E1 and C1, and the second a validation study with the attrition prone Experimental group (E1) matched on freshman standing, sex, and ACT scores, with students not identified as attrition prone (C2). Results were compared by Chi-square analysis. The independent variable was to be special counseling services. Students in the experimental group E1 who received special counseling services were compared with students who received routine student services, C1. Then comparisons were made to ascertain whether an identified group of students predicted to withdraw from college might achieve significantly better and might persist in college at a significantly higher rate than a similarly identified group of students experiencing normal procedures of counseling, advisement, and student services.

Special counseling consisted of establishing a "someone cares" atmosphere. This was attempted by requesting identified students to drop in and see the counselor at their earliest convenience, no appointment

required, and continued with "instant, drop in" availability of a counselor. Counselor initiated outreach continued throughout the quarter for the few students who did not "drop in" on their own.

ATTRITION: REVIEW OF THE LITERATURE

The demand of education after high school increases. To assure success in the pursuit of higher education is now a problem. Dr. Albert Carfield in an address to Sunnyside, Washington, Chamber of Commerce, 1969, stated "the community college is no longer a place -- it's a service. By the time a college facility is built it is already over-enrolled. The accent must be placed on service rather than buildings." Yet larger student bodies produce larger counseling caseloads which seem to produce longer waiting periods for counseling, as budgets stay behind increased enrollments. The rates of attrition then become a concern.

Rice and Scoffield, Yakima College (March, 1969), found the attrition rate to be 60.5% for the years 1952-58 as a national average, increasing to 71.2% among students at teachers colleges. They stated, (their)

> "study had its genesis as an outgrowth of the Yakima Valley College's staff awareness of the need for objective information about its student population and some idea about factors which lead these students to terminate their program prior to what is traditionally considered to be a 'successful' completion of a community college program."

Difficulty is encountered in semantically defining (Rice and Scoffield, 1969) "successful" and "dropout". Jex and Merrill (1962) predicted by 1975 that dropouts will be among the academically incompetent. Does lack of academic ability predispose dropping out? Is academic success the only measure of success? Rice and Scoffield felt a need "to evaluate what is needed to be a 'success' and orient methods to these goals."

(Rice, et al, March, 1969). Drop out literature provides results which arrive at only a cor ensus of definition. However, the Yakima College Study closely resembled the NORCAL project. That study did not attempt to determine reasons for students not meeting the criteria of success, but to objectively identify factors which predisposed the student to drop out and to see whether these factors differed significantly in the persisters.

Yakima College's criteria for success were:

1. Transfer to and acceptance at another institution (mostly 4 year colleges)
2. Completion of 85 quarter hours in two years in an academic major or
3. Completion of 60 quarter hours in a two year period in a vocational major with
4. A GPA of 1.75 or better.

Their results showed 66% drop out rate. The significant predictors were:

63% of the males compared with 70.4% of the females dropped out.

The proportion of males who transferred to another institution compared with female transfers was 2 : 1.

High school GPA was a self-fulfilling prophesy -- 80% of these with a high school GPA under 1.99 dropped out.

Those who declared a major were most likely to persist.

Father's occupation was crucial. As the skill level of the father increased, the likelihood of the student dropping out went down.

Transfers to a four year college were least likely for children of semi and unskilled fathers.

Pace (1960) in "Five College Environments" found the personal factors of ability achievement level, finances, goals, personality need factors and institutional and educational press factors to be causes of student attrition. He stated that "educationally and psychologically a functional environment must be congruent to a student's need." NORCAL findings tend to agree with these predictors.

NORCAL RESEARCH, PHASE I AND II

As this study is based upon the findings of Phase I & II of the Northern California Cooperative Research Project (NORCAL) a detailed review follows.

The Northern California Cooperative Research Project (NORCAL) on Student Withdrawals is in Phase III of a three year project in which twenty-three participating community colleges have been involved.

In brief, MacMillan (1969)

> "The three phases of project can be described as follows:
>
> Phase I: Identifying characteristics of the withdrawal student and the continuing student.
>
> Phase II: Developing, testing, and refining methods of predicting the potential withdrawal student based on those characteristics identified in Phase I.
>
> Phase III: Developing, testing, and experimenting with various counseling, administrative, or other educational techniques."

As stated by MacMillan (1969) objectives for Phase I, discussed below, were stated in the NDEA application for partial funding as:

> "1. To determine the differences between the characteristics of junior college students who start and complete a semester and those junior college students who start, but fail to complete the semester;
>
> 2. To develop models to predict those students who have a high withdrawal potential from the characteristics developed in Phase I;

3. To develop and test appropriate procedures and techniques which will increase the number of students who complete a semester using the withdrawal population delineated by methods developed in Objective 2. (It is anticipated that this phase of the project will not be arrived at until the second year of the study.)"

The project commenced July, 1968. Summary of research to date began with development and preparation of a 112 item questionnaire which was administered to 28,000 entering freshmen students of the participating colleges. Stanford Computation Center was used for data processing. Of the 28,000 students, 1,436 dropped out of college. Their responses to the questionnaire were compared with a randomly selected sample of 1,436 students who persisted and differences in response noted.

Findings as simplified by MacMillan (1969) were in the following areas:

1. Demographic Characteristics - age, sex, race, marital status;

2. Affluence - family and individual financial support for college;

3. Dependence - the expression of attitudes reflecting willingness to turn to others for school and occupational advice;

4. Family Encouragement and Value Patterns - the expression of attitudes related to parental encouragement for college, and to family interaction patterns;

5. Anxiety - the expression of attitudes reflecting concern about school-related problems, personal problems, and social problems;

6. Goals - the expression of preference for various occupational and educational options offered by the community college;

7. Values - the expression of attitudes reflecting a preference for academic versus social activities, and the expression of attitudes reflecting the importance of college to the individual;

8. Self-Concept - the expression of attitudes about the self which reflect confidence, emotional stability, and academic orientation."

Significant variation in responses were noted in the following quoted findings:

1. The potential drop-out is likeliest to be Negro; least likely to be Oriental.
2. The potential drop-out is likely to be married, or divorced or separated.
3. The potential drop-out is likely to be employed part-time in a job that is not related to the college major program for which he is enrolled.
4. The potential drop-out is likely to come from a family that is less affluent, and is likelier to express greater concern over matters of finance and employment.
5. The potential drop-out is likely to be both physically and/or psychologically distant from his parents' home; he is less likely to turn to his parents for advice, and less likely to be living under the same roof.
6. The potential drop-out is likely to have less perceived parental encouragement for his college plans.
7. The potential drop-out is likely to characterize both parents as less loving, kind, or understanding than his persisting counterpart.

8. The potential drop-out shows a lower sense of importance of college.
9. The potential drop-out is likely to have lower educational aspirations than the persister.

High School Grade Point Average, proximity of living accomodations to college, and father's job were not listed as factors. They were factors for Rice and Scoffield (1969).

By use of the statistical program developed by Alan B. Wilson of the Survey Research Center, University of California, discriminant analysis proved that 9% of the total number of variables accounted for the attrition persistence of students in college.

They were Sex, Race, Dad's job, Major, Parental Encouragement, Importance of College to Self, Parent's Education, Keeping a Job, Need for Financial Aid, Sources of Advice, Anxiety and Self Concept. Empirical validity of these as predictors of attrition prone students proved to be .60 only.

The NORCAL project director MacMillan (1969) therefore proceeded with an independent study based on a national sample (not clearly identified) of the difference between persisters for two years as compared with drop-outs in the first semester at two year colleges. This new vehicle was tested on a sample of students entering Laney and Merritt Colleges in 1968. "An empirical validity of .79 was obtained in the Laney - Merritt sample." (MacMillan, 1969). Predictors of attrition identified were:

1. Male
2. Low importance of college to self

3. Advice sought outside

4. Mother working

5. Unidentified obstacles to continuing college

6. Planning for a higher degree

7. Indefinite about attendance plans

8. High anxiety level

9. Low social maturity level

NORCAL proceeded then with a questionnaire "combining the most potent predictors from the NORCAL study with the variables used by MacMillan (1969) in the independent study [expecting] an adequate prediction of individual attrition." MacMillan (1969) also stated:

> "that there are institutional characteristics which tend to create greater patterns of attrition: the proportion of students declaring transfer intent, the counselor/student ration, the proportion of persons in the county served by the college claiming four years or more college education, the racial mix of the county, the mean scores on Parental Encouragement, Importance of College to Me, and the assessed valuation per unit of ADA are all significantly associated with the ranks of the institutions on attrition."
>
> "It is also quite clear that a number of the variables are not within the span of control of the institution. One cannot simply change the proportion of four year college graduates in the county, or easily change the assessed valuation per ADA. It is, however, possible, to increase the racial mix or to change the counselor/student ratio by increasing staff performing counseling and related functions, or perhaps by using students as counselors and tutors for other students."

MacMillan (1969) then stated:

> "The variables most strongly associated with attrition in the ranking of the institutions tend to bear

> out the individual characteristics of the students in the NORCAL study just as individuals with low aspirations tended to withdraw, so also was there greater attrition in the institutions reflecting a lower level of aspiration among the students generally. Other variables were similarly verified as meaningful in the decision making process leading to attrition or persistence."

MacMillan (1969) added:

> "the factor of time and distance between the measurement of drop-outs, seemed to be the essential ingredient in the development of the more adequate model of attrition. It seems likely that if we were to wait for two years and then compare the students in the original NORCAL group with students who persisted for two years, the same differences we now find to be a little predictive value would become of great predictive value in a regression model."

This researcher agrees with MacMillan (1969) that rather than waiting for time to validate

> "a reasonable alternative is simply to borrow the questions, the categories, and the beta weights from MacMillan's research, and, using these in combination with the best variables in the current study, proceed on the assumption that this set may be an adequate model of individual attrition, and that the response will be meaningful as predictors. It is important to recognize that the research design for the independent study was identical to the design for the NORCAL project and to recall that the key difference in the development of the two models was the difference of time span separating the persist and drop-out samples."

Therefore, MacMillan's (1970) questionnaire was used, as Phase II had indicated the worth of such a prediction vehicle.

Assumptions underlying MacMillan's model

> "emphasis was the interaction of antecedent variables or conditions upon the subsequent persistence of

> students" ... "To illustrate the key variables in the NORCAL predictive model, each one is listed below with the partial correlation of the variable shown along with each response. The set of variables is derived in part from MacMillan's (1969) doctoral research, and in part from NORCAL data, with the combined set providing the most promising prediction of attrition. In each case, positive weight is associated with attrition; negative with persistence."

(Following table untitled in original, but showing interaction of antecedent variables upon the subsequent persistence of students. Note: Positive weight predicts attrition. Negative weight predicts persistence.)

TABLE 1

Item	Response	Weights
Sex/Ability (.28)	hi male	.039
	hi female	-.022
	mid male	.022
	mid female	-.107
	low male	.211
	low female	-.082
Importance of College to Me (.29)	N.R.	-.206
	High	-.043
	low	.165
Race (.08)	Cau	.003
	Black	.040
	Oriental	-.091
Major (.17)	undecided	.051
	courses only	.024
	terminal	.040
	transfer	-.054
	other	.022
Parental Support (.22)	N.R.	.013
	low	.037
	mid	.011
	high	-.035

MacMillan (1969) continues:

> "The model developed and applied in the 22 college NORCAL research project yielded an acceptable level of prediction: Typically, seven out of ten students could be correctly identified as persisters or drop-outs by assessing the patterns of their weighted responses to a brief biographical questionnaire, and grouping students by ability and sex."

MacMillan (1970) reported:

> "Of interest to Deans of Student Personnel was the response on the question 'which of the following people would you rely on most for advice about school or job plans?' Almost forty percent (39.73%) of the respondents would turn to a counselor, with father (22.37%) and mother (9.23%) being second and third in preference. The importance of this finding for experimental counseling programs should be emphasized if it is to counselors that students turn, then under what conditions are counselors likeliest to be seen as most available, helpful and responsive?"

NORCAL Validation of the Model - Phase II

Discriminant scores were developed by combining responses and weights from the Phase I questionnaire with responses and weights derived from the same computer analysis program whose validity was tested on the Laney and Merritt sample of students in 1968.

MacMillan (1970) describes it this way:

> "To illustrate the way the model would identify individual students, a maximum possible plus score (high drop-out potential) would be achieved by a low ability Black male student who is undecided about his major, feels that college is of low importance, and has low parental encouragement for college (Score = 49.8). In contrast, the highest possible minus score (persistence) would be achieved by a mid-ability oriental female with a transfer goal and high personal and parental value for college (Score = 33.2)."

MacMillan (1970) critiqu s his own model thus:

> "Given the weakness of the empirical validity of the model for withdrawing students (only about half accurately identified), it would appear that random assignment to experimental treatment would be the sine qua non of further explorations with the model. While it cannot be denied that students with high positive scores have clearly greater liabilities than others, it cannot at the same time be asserted that all students with some liabilities withdraw from college."

To illustrate, from Table 1 the low ability black male will always have a 'liability' score, because of his blackness, maleness and low ability, even if he had a major, considered college important and had parental support. By the same token, a mid-ability oriental female would have to have every other response weighted positively to be identified as a potential dropout, i.e. college not important to her, no potential support and no major. MacMillan (1970) said:

> "The central point may be this -- that assignment to experimental treatment programs during Phase III seems reasonable only under two conditions: 1) random assignment to experimental or control condition, and 2) assignment for research purposes of only those students with plus (liability) scores above 10. Every piece of evidence suggests that the discriminant scores decrease in their effectiveness as they approach zero. By researching attrition among only those students with exceptional liabilities, and by rigorously standing by random selections and assignment, it would appear that a reasonable evaluation could be made of the programs designed to meet the needs of potential drop outs."

METHODOLOGY

A. Objectives and General Design

The purpose of this study was to assess the effectiveness of immediate accessability to one-to-one counseling as a method of reducing attrition among entering college freshmen at Napa College 1970-1971, as Napa's method of implementing procedures to reduce attrition among students identified as attrition prone. The project involved 60 students, assigned to 3 groups, an Experimental group and two Control groups.

The experimental group (E1) was limited to entering attrition prone freshmen (identified by NORCAL questionnaire), twenty in number; sufficiently small a group to be handled by one additional part-time counselor. Two control groups were maintained, one being a group (C1) similarly identified as attrition prone by NORCAL methods, and the other group (C2) matched by sex, ACT scores and freshman status not identified as attrition prone.

B. Population

Identification of attrition prone students: The NORCAL 20 item questionnaire (see appendix) was administered to all first time freshmen seeking admission to Napa College. They were turned in with completed applications. By computer printout the students with highest sum 1 scores (+ 17.10 and over) were thus identified. The Fall Quarter had already been underway one week at this point.

C. Sampling

On the basis of the Northern California Cooperative Research Project (NORCAL) questionnaire validated in Phase II 40 high risk potential dropout students were thus identified. The first 20 students identified by the computer printout were assigned to control group 1 (C1). The experimental group was then matched by sex and ACT score with other entering freshmen forming control group 2 (C2). Both control groups were not identified to other staff and faculty and their members received normally available assistance and advisement, but only when they asked for it.

One experimental group (E1) and two control groups (C1 & C2) were thus identified.

D. Treatments:

Counseling procedures for the special experimental group were as follows:

1. Prepared individual folder for each subject.
2. Reviewed high school transcripts looking for strengths and weaknesses and possible interests.
3. Ascertained ACT score.
4. Obtained copy of class schedule.
5. Sent out counseling call slip through one of student's instructors, using regular call slip. Followed up where there was no response, using another instructor's mail box.

6. Used initial interview to explain that student was assigned to an experimental counseling procedure. (No mention of attrition prone status.) Set up time for longer interview at student's convenience. Emphasis on coming in, anytime, for any reason, even just to talk.
7. Used informal counseling location, e.g. walking around campus, sitting outside in the quad. Counselor "visible and accessible." "Drop in" visits made easy. No need to go through appointment desk. Messages for counselor were left with telephone operator. Emphasis on "someone cares" relationship, acceptance of student as he is, while allowing responsibility for self to remain in hands of student, as a competent human being, able to manage his own affairs. Average number of interviews per student 3.8. Interviews ranged from 15 minutes to 1 hour.
8. Exploration of interests, abilities and life goals through interview, and Kuder Vocational and Personal Inventories where applicable. Introduction to and discussion of various one year and two year programs and requirements for transfer to State College and university. Introduction to and use of "Occupational Outlook Handbook" by Department of Labor and vocational information files in college library was demonstrated. Five students were given both the Kuder Personal and the Kuder Vocational inventories. These inventories were interpreted and evaluated.

9. Acquaintance with and use of all resources of college as applicable encouraged, e.g. tutorial services, teacher office hours for consultation in difficult courses, use of library facilities.
10. Worked together on time schedule for most effective use of time.
11. Assisted with scheduling of next two quarters classes and facilitated registration.

Overall purpose was to provide easy access to counseling, on a one-to-one basis, with access to interest inventories, and evaluation, designed to assist students in their choices and decisions, and encourage them to persist in college.

The counselor assigned to the experimental group was the author. She was an intern counselor (with counseling experience, however) assigned to this special counseling from September 28 to January 22, 1971, during morning hours only.

E. Record Keeping and Data Collection

1. An anecdotal record kept on each student visit.
2. Hand and computer search for results, e.g. registration/non-registration for Winter and Spring Quarters, GPA's for Fall and Winter, units dropped, units completed.
3. Comparisons were made at the end of the Fall quarter and at the end of the Winter quarter, by use of a Chi-square test of statistical significance.

Chi-square comparisons of inter group data were done in the following areas:

1. Units attempted to units completed
2. Grade point average
3. Re-enrollment in Winter and/or Spring
4. Number of quarters in which units earned
5. Sex differences
6. ACT score and GPA
7. ACT score and drop-persist

F. Objectives

The objectives of Phase III of the NORCAL affiliated study at Napa College were:

1. To reduce the rate of attrition in a group of high risk entering freshmen by specially available counseling.
2. To make recommendations for attrition preventive measures for all high risk freshmen and eventually all entering freshmen.

G. Null Hypothesis

1. The three groups will not differ in number who return for a second quarter regardless of treatment.
2. The mean GPA of the experimental group will not differ significantly from the mean GPA of either control group.
3. The average number of units will not differ significantly from the average number of units completed by either control groups.
4. Identified high risk students will not differ from entering freshmen when matched for sex and ACT.

RESULTS

Napa College is one of the nine California Community Colleges on the quarter system. The overall Phase III Research plan was to instigate special procedures to prevent attrition and check the results at the half year (or end of one semester). It seemed feasible Napa College could check quarterly and this was done for Fall & Winter quarters.

Using the general format for NORCAL Phase III terminal data as provided by Donald Kester, Project Director, NORCAL Attrition Study, Napa College therefore added categories to show entrance in Fall only; Winter only; Fall and Winter; Winter and Spring; Fall and Spring; Fall; Winter; or Spring attendance, and Never attended, but filled questionnaire.

TABLE 2

ENROLLMENT, GPA, UNITS ATTEMPTED, UNITS COMPLETED AND QUARTERS ATTENDED COMPARED FOR E1, C1, and C2.

	E1	C1	C2
Enrolled Spring	11	5	17
Not enrolled Spring	9	15	3
% attrition	45%	75%	15%
Mean GPA	2.4	0.75	2.49
Total units attempted	430.5	175.0	753.00
Av. units attempted	21.5	8.75	37.65
Total units completed	319.0	90.00	339.50
Av. units completed	15.5	4.5	16.975
Quarters attended with units earned			
2 quarters	13	3	15
1 quarter	5	3	2
0 quarters	2	14	3

At the end of the Fall quarter it was apparent that students in the experimental group (E1), who had received special counseling services had a lower attrition rate (p .01), a higher re-enrollment rate (p .01), higher grade point average (p .01),completed more units than the NORCAL identified Control Group (C1). When the two groups were compared again after the Winter quarter it was seen that those students in the experimental group had lower attrition rates during the Winter quarter (p .01), higher re-enrollment rate for Spring quarter (p .01), higher grade point averages after Winter quarter (p .01), and completed more units after Winter quarter (p .01) than the NORCAL identified Control (C1).

The validation study at Napa College consisted of the comparison of performance criteria for two groups. The first group consisted of those students who were identified as potential dropouts by the NORCAL questionnaire (E1). The second group of students (C2) were matched with the first group on the variable of ACT test score and sex. The comparisons were made after Fall quarter and after Winter quarter. Students identified by the NORCAL questionnaire as potential dropouts receiving special counseling (E1) did have a higher attrition rate after Fall quarter (p .01), a lower re-enrollment rate after Fall quarter (p .01), a higher attrition rate after Winter quarter (p .001), a lower re-enrollment rate after Winter quarter (p .005), had lower grade point averages after Winter quarter (p .005), than the control group matched for ACT and sex (C2). This indicates special counseling does help potential dropouts, and that the NORCAL questionnaire is valid.

Null Hypothesis #1;

It was hypothesized that accessible individualized counseling would not reduce the number of students who do not return for a second and third quarter among students who were identified as high risk students. Tables 3,4,5, and 6 show significant difference both for Fall and Winter quarters.

TABLE 3

ATTRITION RATE E1 VERSUS C1
AFTER FALL QUARTER

	E1	C1
Withdraw	2	9
Persisted	18	11
Total	20	20
Attrition Rate	10%	45%

$Z = 4.00$
$P < .01$

TABLE 4

RE-ENROLLMENT RATE E1 VERSUS C1
AFTER FALL QUARTER

	E1	C1
Re-enrolled	15	2
Did not enroll	5	18
Total	20	20
Re-enrollment rate	75%	10%

$Z = 3.04$
$P < .01$

TABLE 5

ATTRITION RATE E1 VERSUS C1
AFTER WINTER QUARTER

	E1	C1
Withdrew	2	14
Persisted	18	6
Total	20	20
Attrition Rate	10%	70%

$Z = 3.87$
$P < .01$

TABLE 6

RE-ENROLLMENT RATE E1 VERSUS C1
AFTER WINTER QUARTER

	E1	C1
Re-enrolled	15	3
Did not enroll	5	17
Total	20	20
Re-enrollment Rate	75%	15%

$Z = 3.81$
$P < .01$

The significant differences shown between Group E1 and C1 in attrition and enrollment caused null hypothesis to be rejected. Special counseling does reduce the number of students who do not return among identified attrition prone students. However based on the significantly lower attrition rate of Control 2 (those matched with E1 by ACT and sex) as compared with E1 it seems that special counseling alone does not bring attrition rates back to normal.

Null Hypothesis #2;

It was hypothesized that the mean GPA of the specially counseled experimental group would not differ significantly from the mean GPA of either control group.

TABLE 7

GRADE POINT AVERAGES (INCLUDING DROPOUTS)
E1 VERSUS C1 AFTER FALL

	E1	C1
Mean	2.3985	0.3973
Pooled variance	1.1347	1.1347

$t = 5.00$
$P < .01$

TABLE 8

GRADE POINT AVERAGES (INCLUDING DROPOUTS)
E1 VERSUS C1 AFTER WINTER QUARTER

	E1	C1
Mean	2.4750	0.7480
Pooled Variance	3.5406	3.5406

$t = 2.90$
$P < .01$

The significant differences shown between group E1 and C1 in Grade Point Averages caused null hypothesis 2 to be rejected. Special counseling does bring about higher grade point averages among identified attrition prone students.

The minimal differences between group E1 and C2 (Mean GPA E1 2.475; Mean GPA C2 2.49) further indicates that special counseling improves performance. The null hypothesis 2 was accepted for these matched groups (E1 & C2).

Null Hypothesis #3;

It was hypothesized that special counseling would not cause differences in number of units completed between the experimental group and the control.

TABLE 9

UNITS COMPLETED E1 VERSUS C1
FOR FALL QUARTER

	E1	C1
Mean	9.7000	2.1818
Pooled Variance	28.7535	28.7535

$t = 3.74$
$P < .01$

TABLE 10

UNITS COMPLETED E1 VERSUS C1
FOR WINTER QUARTER

	E1	C1
Mean	15,95	4.50
Pooled variance	95.52	95.52

$t = 3.70$
$P = .01$

The significant difference shown between Group E1 & C1 in number of units completed caused null hypothesis 3 to be rejected. Special counseling does increase the number of units completed among identified attrition prone students.

The minimal difference shown between E1 and C2 (Average units completed E1 15.5 and C2 16.9) further indicates that special counseling brings the number of units completed up to that of regular students.

Null Hypothesis #4;

It was hypothesized that attrition prone students do not differ from entering freshmen.

It has already been noted that with special counseling attrition is less and that performance is improved to normal levels. However a comparison of the two control groups gives differences between identified attrition prone students and entering freshmen.

TABLE 11

ATTRITION RATE C1 (ATTRITION PRONE) VERSUS C2 (ENTERING FRESHMEN)

	C1	C2
Withdrew	9	5
Persisted	11	15
Total	20	20
Attrition Rate	45.0%	10%

P is significant

TABLE 12

ATTRITION RATE C1 VERSUS C2 AFTER WINTER

	C1	C2
Withdrew	14	3
Persisted	6	17
Total	20	20
Attrition Rate	70%	15%

P is significant

The attrition rate among identified attrition prone students is as expected.

Such identified students who receive normal services do differ from regular entering freshmen. Null hypothesis 3 would then be rejected.

DISCUSSION OF RESULTS

NORCAL Phase II succeeded in identifying factors that predicted attrition proneness. The interesting difference between this and the Rice etal (1969) study was that at no time was academic ability one of the variables being worked upon. Rice etal (1969) indicated that High School GPA accurately predicted College success or failure and that by 1975 the dropouts would be among the Accademically incompetent. It would seem logical to assume therefore that entering freshmen with low High School GPA's or low ACT scores predict attrition proneness and that tutorial services would prevent attrition.

No such tutorial services were afforded Napa College's experimental group. (This is not to say that such services would not decrease attrition). Counseling was used instead. Such counseling was designed to establish a personal link with the college, an individualization of approach, a development of a feeling that, "I am recognized as an individual, unique, human being, and am worth spending time upon." Academic ability, or lack of it, was not the entering criteria for establishing such a link. Lack of personal goal, lack of parental encouragement, lack of feeling that college is important were the criteria.

This personalization of the college experience can be considered one of the factors needed to prevent attrition regardless of ability or lack of it. Small proof of the inconclusiveness of ability level

in the Napa study is demonstrated by the fact that the two students with the top ACT scores and the two with the lowest dropped out of the experimental group. The top two and the bottom two ACT scores of the matched control group persisted.

Yet it is a fact that with little emphasis on academics the GPA's of the experimental group were significantly higher than those of the attrition prone control group. This poses the question, is failure due to no one caring? Lack of parental encouragement was one of the identifying factors. Self evaluation was encouraged. Interests and abilities were identified and areas where success would be logical were explored. Were more realistic choices of class made ensuring more success shown in the GPA's as a result? Did expectation of success act as a positive reinforcer of effort? Did more positive feelings about the worth of college develop, causing change in parental attitude? Did the counselor substitute for the disinterested parent?

One of the components of the NORCAL questionnaire which predicts attrition was race. This experimenter believes absence of any positive weightings for race due to the non-existence of black students in the study made the prediction more accurate. Blackness alone would be a strong predictor of attrition proneness.

CONCLUSION:

The results of this study indicated that the personal help and counseling given to the experimental group was instrumental in accounting for a

significant difference in the heightened level of persistency for these experimentally counseled students as compared with their identified attrition prone counterparts.

PROBLEMS OF IMPLEMENTATION

Arising out of this study certain areas of difficulty in providing specialized service to attrition prone students became apparent. They are:

1. Scheduling to allow for immediate access to a counselor, which is an economic as well as timing problem.
2. Deciding whether reassignment to another counselor after intake, retention by intake counselor, or staffing is most beneficial and/or practical.
3. Evaluation of types of preliminary information on students needed:
    a. Autobiographical - written/verbal
    b. Direct questionnaire
    c. Ability testing
    d. Interest inventories
    e. Anecdotal record keeping and method
4. Exploration of expansion of counseling and possible involvement of practicum students from University of California or State College counseling masters students.
5. Provision of such services to all students who express a need.

IMPLICATIONS

Personal one to one relationship counseling was the approach used. Would a group situation provide similar links with the College? Two "courses" currently offered at Napa College may provide such "links". They are:

Psychology 75 College Environmental/Group Processes

Psychology 99 Psychological Testing

College Environment meets twice weekly for an hour and a half each session and is intended to provide a sense of community for the entering freshman and can be taken for credit each quarter. The group is designed to explore difficulties in any area of living that is relevant to the group. It normally moves from where can you go and be comfortable between classes on campus, type discussions on to deeper discussions of interpersonal relationship. Would a group who cares substitute for non-caring parents or for lack of self care? Would it supplement or substitute for counseling? Should such a group be required like English, P.E. etc?

Psychological Testing is an activity class consisting of the taking of interest inventories and ability tests. The goal is self evaluation and awareness. It is also designed to minimize the threat of testing and to put testing in perspective. The class results in lively interaction between student and student and between student and counselor/teacher. A certain group closeness results and a lasting affiliation with the instructor. The author has "taught" such a class. Could this

provide the needed motivation to persist as positive elements of interest and ability are brought into focus?

These classes combined with one to one counseling would provide the supportive services needed to reduce attrition indicated by this study.

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NORCAL CO-OPERATIVE RESEARCH PROJECT

INSTRUCTIONS

This questionnaire is being given to entering freshman students in 22 colleges throughout Northern California as a part of a cooperative research project which has been in progress for one year. The questions on the reverse side of this page should take no more than five or six minutes of your time. Please answer every question to the best of your knowledge. If you do not wish to answer a question, skip it and go on to the next one.

We appreciate your help. The results of this study will be used to develop new programs on your campus and we hope to provide as much information to each college as possible from your responses.

Thank you for taking this extra few minutes of your time.

DIRECTIONS FOR ANSWERING QUESTIONS

Please make heavy marks to indicate your responses to the questions on the reverse side of this page. Read each question carefully, and make the appropriate response in each case; some questions may ask for more than one response.

For marking social security number and college major code, use the form illustrated below. List the numbers down the page, and then mark the spaces corresponding to the numbers. For example, if we were asking for your birthdate, the response would be:

DATE OF BIRTH
Show month, day, year in numbers (Always precede unit numbers with zero, 01, 02, 03, etc.)

Example: Sept. 1, 1949 would be written as follows: 09 01 49 and marked as shown

---

Please select your major from this list and enter the code number of your major in the appropriate blanks.
Majors listed represent Associate in Arts or Associate in Science Degree programs (terminal or transfer). In these areas the College offers a sufficient number of courses in the specific field to permit completion of the twenty-unit minimum degree requirement for the major.

If you are planning to transfer to a four-year college in any of the following listed areas of study, your degree will be Associate in Arts with a major in Liberal Arts. Completion of (a) general education courses required by the four-year college and (b) courses offered in the area of study will usually meet the Liberal Arts major requirement.

900 Apprenticeship - this code number should be used for all apprenticeship majors in any field. Do not use the code number of the specific trade area.
515 LIBERAL ARTS NON-TRANSFER (undecided or unlisted major)
201 Accounting
801 Aeronautics
102 Agribusiness

302 Architectural Drafting
520 Art
805 Automotive Mechanics
807 Body and Fender
808 Building Construction Technology

205 Business Administration
208 Business Data Processing
204 Business, General
809 Carpentry
203 Clerical

207 Court Reporting
814 Diesel Mechanics
816 Electrician
817 Electronics Technician
301 Engineering

883 Fire Science (Evening only)
560 Home Economics
561 Home Economics/Child Development
899 Industrial Arts Ed
823 Industrial Drafting

461 Inhalation Therapy
209 Insurance
535 Journalism
210 Legal Secretary
829 Machinist

211 Marketing
620 Mathematics
830 Mechanical Technology
212 Medical Assistant Secretary
224 Medical Receptionist (1 yr. non-degree course)

462 Medical Records Technology
213 Medical Secretary
831 Mill Cabinet Maker
560 Music
452 Nursing, RN-AA Degree Program

453 Nursing, Vocational-AS Degree Program
468 preNursing, Licensed Vocational
214 Office Administration
216 Office Machines
888 Police Science

217 Public Administration
542 Radio and Television Repairman
219 Real Estate
220 Receptionist (One yr. non-degree program)
430 Recreational Leadership

833 Reprographics
221 Secretarial Science
834 Sheet Metal Worker
741 Social Science
222 Stenography (One yr. non-degree course)

591 Teacher Aide
223 Technical Secretary
886 Transportation
837 Welding
457 X-Ray Technology

510 LIBERAL ARTS TRANSFER (undecided or unlisted major)
101 Agriculture, General
710 Anthropology
681 preArchitecture
631 Astronomy

610 Biological Science
611 Botany
632 Chemistry
770 Criminology
682 preDentistry

720 Economics
530 English-Literature
683 preForestry
552 French
612 Game Management

730 Geography
640 Geology-Earth Science
553 German
459 Health Education
740 History-Political Science

827 Industrial Technology
786 preLaw
620 Mathematics
455 Medical Laboratory Technology
684 preMedicine

451 preNursing, Registered
614 Oceanography
685 preOptometry
686 prePharmacy
570 Philosophy

420 Physical Education
630 Physical Science
633 Physics
750 Psychology
554 Russian

799 Social Welfare
760 Sociology
551 Spanish
543 Speech
590 preTeaching, Elementary or Secondary

787 preTheology
689 preVeterinary
613 Zoology
010 Evening Courses - Transfer
015 Evening Courses - Non-Transfer
999 Non-Credit Courses

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NORCAL COOPERATIVE RESEARCH PROJECT

STUDENT I.D. (DO NOT MARK THIS AREA)

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

TEST USED: ACT SAT TO OP SCAT OTHER

COLLEGE CODE

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

3. WHAT IS YOUR RACE? CAUCASIAN | BLACK | ORIENTAL | OTHER

4. SEX: MALE | FEMALE

5. WHAT IS YOUR MARITAL STATUS? SINGLE | MARRIED

6. IF EMPLOYED, WILL YOU KEEP YOUR JOB WHILE IN COLLEGE? YES | NO | NOT EMPLOYED

7. IS YOUR JOB RELATED TO YOUR COLLEGE MAJOR? YES | NO | NOT EMPLOYED

8. WILL YOU NEED FINANCIAL AID TO REMAIN IN COLLEGE? YES | NO

9. IN THE HOME WHERE YOU GREW UP, WHICH OF THE FOLLOWING BEST DESCRIBES THE JOB OF THE HEAD OF THE FAMILY?

UNEMPLOYED | UNSKILLED (NO FORMAL TRAINING)

SEMI-SKILLED (SOME FORMAL TRAINING PREFERRED) | SKILLED (SOME FORMAL TRAINING REQUIRED)

MANAGERIAL (CONSIDERABLE TRAINING REQUIRED) | PROFESSIONAL

10. DOES YOUR MOTHER HAVE A JOB OUTSIDE THE HOME? YES, FULL TIME | YES, PART TIME | NO

11. HOW FAR AWAY FROM COLLEGE DO YOU LIVE? 1-5 MILES | 6-10 MILES | 11-15 MILES | 16-20 MILES | OVER 20 MILES

12. HOW DO YOU GET TO THE CAMPUS? OWN CAR | CAR POOL | PUBLIC TRANS | SCHOOL BUS | OTHER

13. HOW LONG DOES IT TAKE YOU TO GET TO CAMPUS? 20 MIN. OR LESS | 21-30 MINUTES | 31-45 MINUTES | 45-60 MINUTES | OVER 60 MINUTES

14. WHAT IS YOUR REASON FOR COMING TO COLLEGE? (MARK ONE CHOICE ONLY)

☐	I HAVEN'T REALLY DECIDED YET	☐	TO GET A JUNIOR COLLEGE DEGREE ONLY
☐	JUST TO TAKE INTERESTING COURSES	☐	TO GET A JUNIOR COLLEGE DEGREE AND COMPLETE A VOCATIONAL/TECHNICAL PROGRAM
☐	TO COMPLETE ONE OF THE TECHNICAL/VOCATIONAL COURSES	☐	TO PREPARE FOR TRANSFER TO ANOTHER INSTITUTION WITH OR WITHOUT AN A.A. DEGREE

15. SOMETIMES PEOPLE ARE UNABLE TO COMPLETE COLLEGE EVEN THOUGH THEY PLAN TO. IF YOU ARE UNABLE TO FINISH WHAT DO YOU THINK WILL BE THE LIKELIEST OBSTACLE? ACADEMIC | FINANCIAL | MARRIAGE | MOTIVATION | OTHER

16. WE SOMETIMES TURN TO OTHERS FOR ADVICE WHEN WE ARE MAKING PLANS. IF YOU WERE MAKING AN IMPORTANT DECISION NOW, HOW LIKELY IS IT THAT YOU WOULD TURN TO EACH OF THE FOLLOWING:

	NOT VERY LIKELY	MAYBE	LIKELY	VERY LIKELY		NOT VERY LIKELY	MAYBE	LIKELY	VERY LIKELY
NO ONE	☐	☐	☐	☐	COUNSELOR	☐	☐	☐	☐
FATHER	☐	☐	☐	☐	BROTHER/SISTER	☐	☐	☐	☐
MOTHER	☐	☐	☐	☐	FRIENDS	☐	☐	☐	☐
TEACHER	☐	☐	☐	☐	OTHER	☐	☐	☐	☐

17. WHICH OF THE FOLLOWING PEOPLE WOULD YOU RELY ON MOST FOR ADVICE ABOUT SCHOOL OR JOB PLANS? NO ONE | FATHER | MOTHER | TEACHER | COUNSELOR | BROTHER/SISTER | FRIENDS | OTHER

18. HOW IMPORTANT IS IT TO THE FOLLOWING PEOPLE THAT YOU GO TO COLLEGE?

	NOT VERY IMPT	SOMEWHAT IMPT	QUITE IMPT	EXTREMELY IMPT
FATHER	☐	☐	☐	☐
MOTHER	☐	☐	☐	☐
OTHER	☐	☐	☐	☐

19. HOW IMPORTANT IS COLLEGE TO YOU PERSONALLY? NOT VERY IMPT | SOMEWHAT IMPT | QUITE IMPT | EXTREMELY IMPT

20. WHAT IS YOUR MAJOR? (USE THE LIST OF MAJOR CODES ON THE REVERSE SIDE OF THIS PAGE)

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9

0 1 2 3 4 5 6 7 8 9